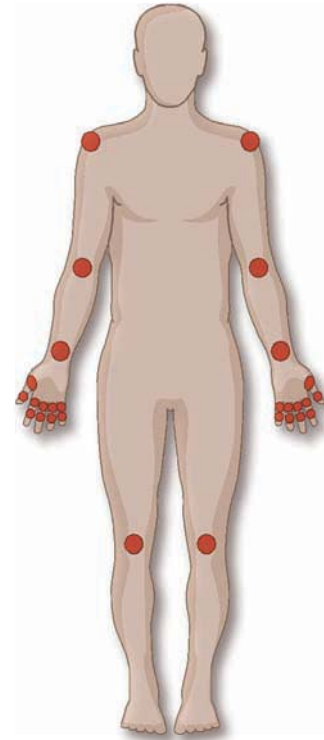# DISEASE ACTIVITY SCORE IN 28 JOINTS (DAS28)

The DAS28 is a frequent outcome measure used in therapeutic trials and is also used to guide treatment decisions and describe disease activity across populations. It is the basis for several other RA measurement tools, including the EULAR response criteria.

FORM A		LEFT		RIGHT	
		SWOLLEN	TENDER	SWOLLEN	TENDER
Shoulder		1	0	0	0
Elbow		0	0	0	0
Wrist		0	0	0	1
Metacarpophalangeal (MCP)	1	1	1	0	0
	2	0	0	0	0
	3	0	0	1	1
	4	0	0	0	0
	5	0	0	0	0
Proximal Interphalangeal (PIP)	1	0	0	0	0
	2	0	1	0	1
	3	0	0	0	0
	4	0	0	1	0
	5	0	0	0	0
Knee		0	0	0	0
Subtotal		2	2	2	3
TOTAL		SWOLLEN 4		TENDER 5	

FORM B	
Swollen (0–28)	4
Tender (0–28)	5
ESR (or CRP)	40
VAS disease activity (0–100mm)	20
DAS28=0.56*$\sqrt{}$(TENDER JOINTS) + 0.28* $\sqrt{}$(SWOLLEN JOINTS) + 0.70*LN(ESR/CRP) + 0.014*VAS	4.6

By comparing a patient's DAS28 score over multiple time points, you can substantiate his/her improvement or response. The EULAR response criteria are defined as follows:

PRESENT DAS28	DAS28 IMPROVEMENT OVER TIME POINTS		
	>1.2	0.6–1.2	<0.6
<3.2	good response	moderate response	no response
3.2–5.1	moderate response	moderate response	no response
>5.1	moderate response	no response	no response

Source: DAS-Score.nl. Available at http://www.das-score.nl/www.das-score.nl/index.html. Accessed February 5, 2009.

HOW TO CALCULATE A DAS28 SCORE

1. Perform a swollen and tender joint examination of your patient, noting each affected joint on Form A. When complete, add all of the swollen and tender joints and record the totals in the appropriate boxes on Form B.

2. Obtain and record the patient's erythrocyte sedimentation rate (ESR) in mm/h in the appropriate box on Form B. Note: C-reactive protein (CRP) levels may be used as a substitute for an ESR.

3. Obtain and record the patient's general health on a Visual Analog Scale (VAS) of 100 mm in the appropriate box on Form B. Note: DAS28 calculations may be performed without a VAS measurement.

4. Plug the appropriate values into the formula at the bottom of Form B (many online calculators are available to compute this value including http://www.das-score.nl/www.das-score.nl/dasculators.html).

5. A DAS28 score of higher than 5.1 is indicative of high disease activity, whereas a DAS28 below 3.2 indicates low disease activity. A patient is considered to be in remission if they have a DAS28 lower than 2.6.